

matter and does not change the scope of the claim. Claims 3 and 6 have been amended in a similar fashion.

Claims 13 and 14 have been amended according to the Examiner's suggestion and the amendments do not change the scope of the claims.

Claims 16-18 have been rejected as the term "the component starch" does not have antecedent basis. The term has been amended to "the starch" which has antecedent basis and does not change the scope of the claims.

Claim 20 is indefinite in that it incorrectly depends from the method of claim 11. It has been made dependent upon the method of claim 1.

Claim 21 has been rewritten using proper Markush language.

Claim 1 has also been limited in scope to "a total moisture content of from about 20% to about 45% by weight based on the dry weight of the grain" descriptive basis for which may be found on page 8, lines 7-8; "at a temperature of from about 90°C to about 130°C" descriptive basis for which may be found on page 8, line 18; and "for a period of about 0.5 to 24 hours" descriptive basis for which may be found at page 8, line 25. Claim 1 was further limited by incorporating the limitation of claim 2.

New claims 22-40 have been added. These claims are based on the original claims, but are limited to high amylose starch.

Claims 1, 2, 4, 5, 8, and 10-15 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Whitney, et al. (US 5,972,413). Whitney does not anticipate the claims as amended.

Whitney states that his process has the advantageous property of gelatinization (see col. 2, lines 28-30). In contrast, claim 1 of the present invention is limited to starch in which the heat-treated grain is not completely destroyed and thus is not fully gelatinized.

Claims 3, 6-7, 9 and 16-21 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Whitney, et al. (US 5,972,413) in view of Ferguson, et al. (US 5,300,145). As detailed above, the amended claims differ from those of Whitney, inter alia in that the starch is not gelatinized. Ferguson does not remedy this deficiency.

The Examiner did not consider the IDS submitted by Applicant on 4 September, 2001 as the references were not received. Applicants enclose a copy of each reference herein.

In view of the foregoing, Applicant submits the Application is now in condition for allowance and respectfully requests early notice to that effect.

Respectfully submitted,



Karen G. Kaiser
Attorney for Applicants
Reg. No. 33,506

National Starch and Chemical Company
P.O. Box 6500
Bridgewater, NJ 08807-0500
(908) 575-6152

Dated: 18 Sept 02

APPENDIX A
(marked up claims as amended)

1. A method for preparing a grain containing starch with increased total dietary fiber content comprising heating a base grain having a total moisture content of from about [8] 20% to about [85] 45% by weight based on the dry weight of the grain, at a temperature of from about [65] 90°C to about [150] 130°C for a period of about 0.5 to 24 hours, under a combination of moisture and temperature conditions such that the starch does not have its granular structure completely destroyed and to provide a heat-treated-grain having an increase in total dietary fiber content ("TDF") of at least 10%.
- [2. The method of Claim 1, wherein the granular structure of the heat-treated grain is not completely destroyed.]
3. The method of Claim 1 wherein the base grain contains a [component] starch having at least 40% by weight amylose content.
4. The method of Claim 1 wherein [the total moisture content of the base grain is from about 24% to about 55% and] the temperature is between about 90 °C to about 125 °C.
6. The method of Claim 1 wherein the base grain contains a [component] granular starch that has at least 65% by weight amylose content.
9. The method of Claim 1 wherein the base grain is obtained from a plant source having an amylose extender genotype, the [component granular] starch comprising less than 10% amylopectin determined by butanol fractionation/exclusion chromatography measurement.

13. The grain of Claim 11 [further comprising] having a higher onset temperature than a corresponding un-treated grain.
14. The grain of Claim 13 [further comprising] having a higher delta H than a corresponding untreated grain.
16. The grain of Claim 11 wherein the amylose content is between about 50 to about 69% by weight of the [component] starch and having a TDF of at least than 45%.
17. The grain of Claim 11 wherein the amylose content of the [component] starch is between about 70 and about 89% and having a TDF content of at least 58%.
18. The grain of Claim 11 wherein the amylose content of the [component] starch is greater than 90% and having a TDF content of at least 75%.
20. A food product containing a grain prepared by the method of Claim [11] 1.
21. The food product of Claim 20, [comprising] wherein the food is selected from the group consisting of cereal, bread, crackers, cookies, cakes, pasta, beverages, fried and coated foods, snacks, dairy products, and cheeses.
22. A method for preparing a grain containing starch with increased total dietary fiber content comprising heating a grain containing starch having at least about 40% by weight amylose, said grain having a total moisture content of from about 8% to about 85% by weight based on the dry weight of the grain, at a temperature of from about 65°C to about 150°C, under a combination of moisture and temperature conditions to provide a heat-treated-grain having an increase in total dietary fiber content ("TDF") of at least 10%.

23. The method of Claim 22, wherein the starch does not have its granular structure completely destroyed.
24. The method of Claim 22 wherein the total moisture content of the base grain is from about 24% to about 55% and the temperature is between about 90 °C to about 125 °C.
25. The method of Claim 22 wherein the base grain is corn.
26. The method of Claim 22 wherein the base grain contains a granular starch that has at least 65% by weight amylose content.
27. The method of Claim 22 wherein the base grain is degerminated.
28. The method of Claim 22 wherein the total moisture content of the base grain is from about 20% to about 45% and the temperature is between about 90 °C to about 125 °C.
29. The method of Claim 22 wherein the base grain is obtained from a plant source having an amylose extender genotype, the starch comprising less than 10% amylopectin determined by butanol fractionation/exclusion chromatography measurement.
30. The method of Claim 29 wherein the base grain has a total moisture content of from about 20% to about 35% and the heating is at a temperature of from about 90 to 120°C.
31. A grain made by the method of Claim 22.
32. The grain of Claim 31 having an increase in TDF content of greater than 30%.

33. The grain of Claim 31 having a higher onset temperature than a corresponding untreated grain.
34. The grain of Claim 33 having a higher delta H than a corresponding untreated grain.
35. The grain made by the method of Claim 22 having a higher TDF and RS than a corresponding untreated grain.
36. The grain of Claim 31 wherein the amylose content is between about 50 to about 69% by weight of the starch and having a TDF of at least than 45%.
37. The grain of Claim 31 wherein the amylose content of the starch is between about 70 and about 89% and having a TDF content of at least 58%.
38. The grain of Claim 31 wherein the amylose content of the starch is greater than 90% and having a TDF content of at least 75%.
39. A starch isolated from the heat-treated grain of Claim 31.
40. A food product containing a grain prepared by the method of Claim 22.
41. The food product of Claim 40, wherein the food is selected from the group consisting of cereal, bread, crackers, cookies, cakes, pasta, beverages, fried and coated foods, snacks, dairy products, and cheeses.